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Veterans' Affairs

INFORMATION TECHNOLOGY

DOD and VA Have Increased Their Sharing of Health Information, but Further Actions Are Needed

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Issues

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INFORMATION TECHNOLOGY

DOD and VA Have Increased Their Sharing of Health Information, but Further Actions Are Needed

Why GAO Did This Study

The National Defense Authorization Act for Fiscal Year 2008 required the Department of Defense (DOD) and the Department of Veterans Affairs (VA) to accelerate the exchange of health information between the departments and to develop systems or capabilities that allow for full interoperability (generally, the ability of systems to use data that are exchanged) and that are compliant with federal standards. The act also established an interagency program office to function as a single point of accountability for the effort and whose role is to implement such systems or capabilities by September 30, 2009.

Further, the act required that GAO semi-annually report on the progress made in achieving these goals; its first report was issued in July 2008. In that report, GAO described the departments' progress in sharing electronic health information, developing electronic health records that comply with federal standards, and establishing the interagency program office. In this testimony, GAO discusses its July 2008 report and updated information obtained from the departments.

What GAO Recommends

In the report covered by this testimony, GAO made recommendations that the departments give priority to fully establishing the interagency program office and finalizing the implementation plan. DOD and VA concurred with GAO's recommendations.

To view the full product, including the scope and methodology, click on GAO-08-1158T. For more information, contact Valerie Melvin at (202) 512-6304 or melvinv@gao.gov.

What GAO Found

DOD and VA are sharing some, but not all, electronic health information. This includes exchanging some information in computable form, which is the highest level of interoperability. In other cases, data can be viewed only—a lower level of interoperability that still provides clinicians with important information. The departments have undertaken a number of initiatives, resulting in varied sharing capabilities (see table below). However, information is still being captured in paper records at many DOD medical facilities, and not all electronic health information is being shared.

Sharing Capabilities of DOD and VA Initiatives

Initiative	Sharing Capabilities
DOD's Clinical Data Repository/VA's Health Data Repository Interface[a]	Bidirectional (or two-way) real-time exchange of computable pharmacy and drug allergy data
Bidirectional Health Information Exchange	Bidirectional real-time sharing of viewable health data[b]
Federal Health Information Exchange	One-way transfer of viewable health data[b] from DOD to VA
Laboratory Data Sharing Interface	Bidirectional sharing of viewable lab tests and results

Source: DOD and VA.

[a]Known as CHDR, pronounced "cheddar," this interface combines the names of the two repositories.
[b]See attachment 1 for a list of the data elements that are made available and are planned for these initiatives.

Further enhancing sharing and interoperability depends on adherence to common standards. The two departments have agreed on numerous common standards and are working with federal groups and each other to ensure adherence to such standards and to align their initiatives with emerging standards. These efforts, led by the Office of the National Coordinator for Health Information Technology (within the Department of Health and Human Services), include identifying relevant existing standards, identifying and addressing overlaps and gaps in the standards, and developing interoperability specifications and certification criteria based on these standards.

The departments are also in the process of setting up a new interagency program office that will play a crucial role in accelerating their efforts to achieve electronic health records and capabilities that allow for full interoperability. However, the program office is not expected to be fully operational until the end of the year, which will allow the departments only 9 months to meet the deadline for full interoperability between the departments by September 2009. While DOD and VA have produced a plan for achieving interoperability within this time period, many milestones have yet to be determined. In view of the short timeframe and without a fully established program office and a complete plan with fully established milestones, the departments may be challenged in achieving interoperable electronic health records and capabilities that most effectively serve military service members and veterans.

_____ **United States Government Accountability Office**

Mr. Chairman and Members of the Committee:

I am pleased to participate in today's hearing on the exchange of electronic medical information between the Department of Defense (DOD) and the Department of Veterans Affairs (VA). As you know, the two departments have been pursuing initiatives to share data between their health information systems for the last decade. However, while progress has been made, questions have remained concerning when and to what extent the intended electronic sharing capabilities will be fully achieved.

To expedite the departments' efforts to exchange electronic medical information, the National Defense Authorization Act for Fiscal Year 2008[1] included provisions directing DOD and VA to jointly develop and implement, by September 30, 2009, electronic health record systems or capabilities. The act required that these systems or capabilities be compliant with applicable interoperability[2] standards, and it established an interagency program office to be a single point of accountability for the departments' efforts.

Further, the act directed GAO to assess DOD's and VA's progress in implementing the electronic health record systems and to report semi-annually its results to the appropriate congressional committees. Accordingly, on July 28, 2008, we issued the first of our reports in response to the act, in which we highlighted the departments' progress in (1) sharing electronic health information, (2) developing electronic records that comply with national standards, and (3) establishing the interagency program office.[3] At your request, my testimony today summarizes our findings in these three areas, as presented in that report.

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[1]The National Defense Authorization Act for Fiscal Year 2008, Pub. L. No. 110-181, Section 1635, required "Fully Interoperable Electronic Personal Health Information for the Department of Defense and the Department of Veterans Affairs."

[2]Interoperability is the ability of two or more systems or components to exchange information and to use the information that has been exchanged. Further discussion of levels of interoperability is provided later in this testimony.

[3]GAO, *Electronic Health Records: DOD and VA Have Increased Their Sharing of Health Information, but More Work Remains*, GAO-08-954 (Washington, D.C.: July 28, 2008).

In developing this testimony, we relied largely on our previous work supporting the July 2008 report. Where available, we also obtained and analyzed updated information about the departments' exchange activities. We conducted our work in support of this testimony during August 2008 and September 2008, in Washington, D.C. All work on which this testimony is based was performed in accordance with generally accepted government auditing standards. Those standards require that we plan and perform the audit to obtain sufficient, appropriate evidence to provide a reasonable basis for our findings and conclusions based on our audit objectives. We believe that the evidence obtained provides a reasonable basis for our findings and conclusions based on our audit objectives.

Results in Brief

DOD and VA are sharing some, but not all, electronic health information at different levels of interoperability. Specifically, pharmacy and drug allergy data on almost 19,000 shared patients are exchanged at the highest level of interoperability—that is, in computable form; at this level, the data are in a standardized format that a computer application can act on. In other cases, data can be viewed only—a lower level of interoperability that still provides clinicians with important information. However not all health information is shared electronically; information is still being captured in paper records at many DOD medical facilities. According to the departments, the September 2008 DOD/VA Information Interoperability Plan is intended to address these and other issues and define tasks required to guide the development and implementation of an interoperable electronic health record capability. If properly executed, the plan could help the departments fully achieve the goal of seamless sharing of health information.

Further enhancing interoperability depends on adherence to common standards. The two departments have agreed upon numerous standards that allow them to share health data and are participating in initiatives led by the Office of the National Coordinator for Health Information Technology (within the Department of Health and Human Services) that are aimed at

promoting the adoption of federal standards and broader use of electronic health records. The involvement of the departments in the federal initiatives is an important mechanism for aligning their electronic health records with emerging federal standards.

Once fully established, a new interagency program office is expected to play a crucial role in accelerating the departments' efforts to develop and implement electronic health records and capabilities that allow for full interoperability. However, the program office is not expected to be fully operational until the end of the year, after which only 9 months will remain to meet the deadline for full interoperability between the departments by September 2009. The program office's plan for achieving interoperability within this time period includes milestones that are yet to be determined. In view of the short timeframe, without a fully established program office and a complete plan with established milestones, the departments may be challenged in meeting the required date for achieving interoperable electronic health records and capabilities.

To better ensure the successful attainment of interoperable electronic health record systems or capabilities, we recommended that the departments give priority to fully establishing the interagency program office and finalizing their implementation plan. The departments concurred with our recommendations.

Background

The use of information technology (IT) to electronically collect, store, retrieve, and transfer clinical, administrative, and financial health information has great potential to help improve the quality and efficiency of health care and is critical to improving the performance of the U.S. health care system. Historically, patient health information has been scattered across paper records kept by many different caregivers in many different locations, making it difficult for a clinician to access all of a patient's health information at the time of care. Lacking access to these critical data, a clinician may be challenged to make the most informed decisions on

treatment options, potentially putting the patient's health at greater risk. The use of electronic health records can help provide this access and improve clinical decisions.[4]

Electronic health records are particularly crucial for optimizing the health care provided to military personnel and veterans. While in military status and later as veterans, many DOD and VA patients tend to be highly mobile and may have health records residing at multiple medical facilities within and outside the United States. Making such records electronic can help ensure that complete health care information is available for most military service members and veterans at the time and place of care, no matter where it originates.

Key to making health care information electronically available is interoperability—that is, the ability to share data among health care providers. Interoperability enables different information systems or components to exchange information and to use the information that has been exchanged. This capability is important because it allows patients' electronic health information to move with them from provider to provider, regardless of where the information originated. If electronic health records conform to interoperability standards, they can be created, managed, and consulted by authorized clinicians and staff across more than one health care organization, thus providing patients and their caregivers the necessary information required for optimal care. (Paper-based health records—if available—also provide necessary information, but unlike electronic health records, do not provide decision support capabilities, such as automatic alerts about a particular patient's health, or other advantages of automation.)

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[4]An electronic health record is a longitudinal collection of information about the health of an individual or the care provided, such as patient demographics, progress notes, problems, medications, vital signs, past medical history, immunizations, laboratory data, and radiology reports.

Interoperability can be achieved at different levels.[5] At the highest level, electronic data are computable (that is, in a format that a computer can understand and act on to, for example, provide alerts to clinicians on drug allergies). At a lower level, electronic data are structured and viewable, but not computable. The value of data at this level is that they are structured so that data of interest to users are easier to find. At still a lower level, electronic data are unstructured and viewable, but not computable. With unstructured electronic data, a user would have to find needed or relevant information by searching uncategorized data. Beyond these, paper records can also be considered interoperable (at the lowest level) because they allow data to be shared, read, and interpreted by human beings. However, my discussion today focuses only on the three levels of electronic interoperability. Figure 1 shows the distinction between the various levels of interoperability and examples of the types of data that can be shared at each level.

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[5]These levels were identified by the Center for Information Technology Leadership, which was chartered in 2002 as a research organization established to help guide the health care community in making more informed strategic IT investment decisions. According to DOD and VA officials, the different levels of interoperability have been accepted for use by the Office of the National Coordinator for Health Information Technology.

Figure 1: Levels of Data Interoperability
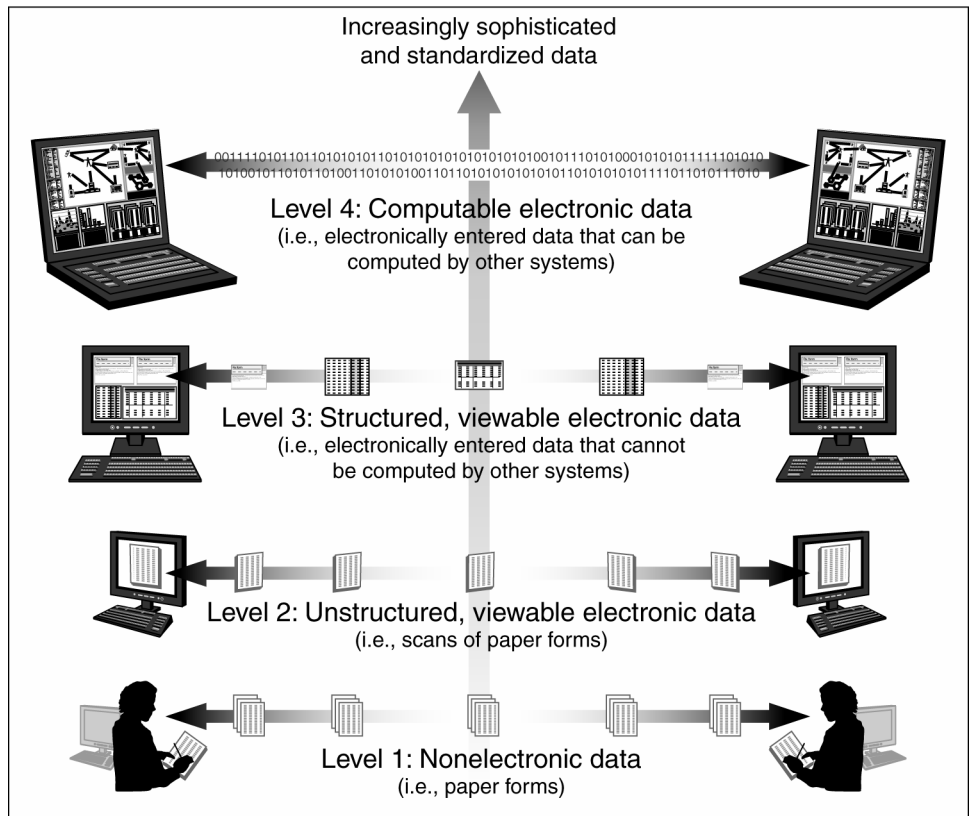
Source: GAO analysis based on data from the Center for Information Technology Leadership.

It is important to note that not all data require the same level of interoperability. For example, in their initial efforts to implement computable data, DOD and VA focused on outpatient pharmacy and drug allergy data because clinicians gave priority to the need for automated alerts to help medical personnel avoid administering inappropriate drugs to patients. On the other hand, for such narrative data as clinical notes, unstructured, viewable data may be sufficient. Achieving even a minimal level of electronic interoperability is valuable for potentially making all relevant information available to clinicians.

Efforts to Adopt and Implement Federal Interoperability Standards Are Ongoing

Any level of interoperability depends on the use of agreed-upon standards to ensure that information can be shared and used. In the health IT field, standards govern areas ranging from technical issues, such as file types and interchange systems, to content issues, such as medical terminology. Developing, coordinating, and agreeing on standards are only part of the processes involved in achieving interoperability for electronic health records systems or capabilities. In addition, specifications are needed for implementing the standards, as well as criteria and a process for verifying compliance with the standards.

The President's executive order of April 2004 that called for widespread adoption of interoperable electronic health records by 2014,[6] established the Office of the National Coordinator for Health Information Technology within the Department of Health and Human Services (HHS) to, among other things, develop, maintain, and direct the implementation of a strategic plan to guide the nationwide implementation of interoperable health IT in both the public and private health care sectors. Under the direction of HHS (through the Office of the National Coordinator), three primary organizations were designated to play major roles in expanding the implementation of health IT:

- The American Health Information Community was created by the Secretary of Health and Human Services as a federal advisory body to make recommendations on how to accelerate the development and adoption of health IT, including advancing interoperability, identifying health IT standards, advancing nationwide health information exchange, and protecting personal health information. Formed in September 2005, the community is made up of representatives from both the public and private sectors, including high-level DOD and VA officials. The community determines specific

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[6]Executive Order 13335, *Incentives for the Use of Health Information Technology and Establishing the Position of the National Health Information Technology Coordinator* (Washington, D.C.: Apr. 27, 2004).

health care areas of high priority and develops "use cases"[7] for these areas, which provide the context in which standards would be applicable. The use cases convey how health care professionals would use such records and what standards would apply.

- The Healthcare Information Technology Standards Panel, sponsored by the American National Standards Institute[8] and funded by the Office of the National Coordinator, was established in October 2005 as a public-private partnership to identify competing standards for the use cases being developed by the American Health Information Community and to "harmonize"[9] the standards. The panel also develops the interoperability specifications that are needed for implementing the standards. Interoperability specifications were developed for each of the seven use cases developed by the American Health Information Community in 2006 and 2007.[10] The community is also developing six use cases for 2008 for which interoperability specifications have not yet been released.[11] The Healthcare Information Technology Standards Panel is made up of representatives from both the public and private sectors, including DOD and VA officials who serve as members and are actively working on several committees and groups within the panel. This

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[7]Use cases are descriptions of events that detail what a system (or systems) needs to do to achieve a specific mission or goal; they convey how individuals and organizations (actors) interact with the systems. For health IT, use cases strive to provide enough detail and context for follow-up activities to occur, such as standards harmonization, architecture specification, certification consideration, and detailed policy discussions to advance the national health IT agenda.

[8]The American National Standards Institute is a private, nonprofit organization whose mission is to promote and facilitate voluntary consensus standards and ensure their integrity.

[9]Harmonization is the process of identifying overlaps and gaps in relevant standards and developing recommendations to address these overlaps and gaps.

[10]The seven use cases are Emergency Responder, Consumer Empowerment, Medication Management, Quality, Registration and Medication History, Laboratory Results Reporting, and Visit, Utilization, and Lab Result Data.

[11]The six use cases are Remote Monitoring, Patient-Provider Secure Messaging, Personalized Healthcare, Consultation and Transfers of Care, Public Health Case Reporting, and Immunizations & Response Management.

panel is the successor to the Consolidated Health Informatics[12] initiative, which was dissolved and absorbed into the panel on September 30, 2006.

- The Certification Commission for Healthcare Information Technology is an independent, nonprofit organization that certifies health IT products. HHS entered into a contract with the commission in October 2005 to develop and evaluate the certification criteria and inspection process for electronic health records. According to HHS, certification is to be the process by which the IT systems of federal health contractors are established to meet federal interoperability standards. Certification helps assure purchasers and other users of health IT systems that the systems will provide needed capabilities (including ensuring security and confidentiality) and will work with other systems without reprogramming. Certification also encourages adoption of health IT by assuring providers that their systems can participate in nationwide health information exchange in the future. In 2006, the commission certified the first 37 ambulatory—or clinician office-based—electronic health record products as meeting baseline criteria for functionality, security, and interoperability. In 2007, the commission expanded certification to inpatient—or hospital—electronic health record products, which could significantly increase patients' and providers' access to the health information generated during a hospitalization. To date, the commission has certified over 100 electronic health record products.

DOD and VA Have Been Pursuing Efforts to Exchange Health Information for a Decade

DOD and VA have been working to electronically exchange patient health data since 1998. As we have reported previously,[13] their

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[12]In December 2001, the Consolidated Health Informatics was initiated to enable federal agencies to build interoperable health data systems. This project was a collaborative agreement among federal agencies, including DOD and VA, to adopt a common set of health information standards for the electronic exchange of clinical health information.

[13]GAO-08-954.

efforts have included both short-term initiatives to share information in existing (legacy) systems, as well as a long-term initiative to develop modernized health information systems—replacing their legacy systems—that would be able to share data and, ultimately, use interoperable electronic health records.

In their short-term initiatives to share information from existing systems, the departments began from different positions. VA has one integrated medical information system—the Veterans Health Information Systems and Technology Architecture (VistA)—which uses all electronic records and was developed in-house by VA clinicians and IT personnel. All VA medical facilities have access to all VistA information.

In contrast, DOD uses multiple legacy medical information systems, all of which are commercial software products that are customized for specific uses. For example, the Composite Health Care System (CHCS) which was formerly DOD's primary health information system is still in use to capture pharmacy, radiology, and laboratory information.[14] In addition, the Clinical Information System (CIS), a commercial health information system customized for DOD, is used by some facilities for inpatients.

The departments' short-term initiatives to share information in their existing systems have included several projects:

- The Federal Health Information Exchange (FHIE), completed in 2004, enables DOD to electronically transfer service members' electronic health information to VA when the members leave active duty.

- The Laboratory Data Sharing Interface (LDSI), a project established in 2004, allows DOD and VA facilities to share laboratory resources. This interface, now deployed at nine locations, allows the

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[14]According to DOD, CHCS applications are now accessed through its modernized health information system, Armed Forces Health Longitudinal Technology Application (AHLTA). The department no longer considers AHLTA as an acronym but as the official name of the system.

departments to communicate orders for lab tests and their results electronically.

- The Bidirectional Health Information Exchange (BHIE), also established in 2004, was aimed at allowing clinicians at both departments viewable access to records on shared patients (that is, those who receive care from both departments—for example, veterans may receive outpatient care from VA clinicians and be hospitalized at a military treatment facility).[15] The interface also allows DOD sites to see previously inaccessible data at other DOD sites.

As part of the long-term initiative, each of the departments aims to develop a modernized system in the context of a common health information architecture that would allow a two-way exchange of health information. The common architecture is to include standardized, computable data; communications; security; and high-performance health information systems: DOD's Armed Forces Health Longitudinal Technology Application (AHLTA)[16] and VA's HealtheVet. The departments' modernized systems are to store information (in standardized, computable form) in separate data repositories: DOD's Clinical Data Repository (CDR) and VA's Health Data Repository (HDR). For the two-way exchange of health information, the two repositories are to be linked through an interface named CHDR,[17] which the departments began developing in March 2004 (with implementation beginning in September 2006).

Beyond these initiatives, in January 2007, the departments announced an addition to their information-sharing strategy: their intention to jointly determine an approach for inpatient health

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[15]To create BHIE, the departments drew on the architecture and framework of the information transfer system established by the FHIE project. Unlike FHIE, which provides a one-way transfer of information to VA when a service member separates from the military, the two-way interface allows clinicians in both departments to view, in real time, limited health data (in text form) from the departments' existing health information systems.

[16]AHLTA was formerly known as CHCS II.

[17]The name CHDR, pronounced "cheddar," combines the names of the two repositories.

records. On July 31, 2007, they awarded a contract for a feasibility study and exploration of alternatives.[18] According to the departments, one of the options would be adopting a joint solution, which would be expected to facilitate the seamless transition of active-duty service members to veteran status, and make inpatient health care data on shared patients more readily accessible to both DOD and VA. In addition, the departments believe that a joint development effort could enable them to realize cost savings. However, no decision on a joint inpatient health records system has yet been made. The departments' officials stated that they received recommendations from the contractor on the possible approaches for the joint inpatient electronic health record in August, but added that they would not be prepared to release the findings from the study until senior leadership has fully reviewed and considered the recommendations—a step for which no date was provided.

We have previously pointed out that the many tasks and challenges associated with the departments' long-term goal of seamless sharing of health information made it essential that the departments develop a comprehensive project plan to guide these efforts to completion. Therefore, in 2004, we recommended that the departments develop such a plan for the CHDR interface and that it include a work breakdown structure and schedule for all development, testing, and implementation tasks.[19] Further, as the departments undertook work on their short-term initiatives, we raised concerns regarding how all of these initiatives were to be incorporated into an overall strategy toward achieving the departments' goal of a comprehensive, seamless exchange of health information.

In response to our concerns, the departments began developing a comprehensive plan, which they called the DOD/VA Information Interoperability Plan. To provide input to the plan and determine priorities, in December 2007, the departments established the Joint

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[18]The contract for this study is still ongoing; according to DOD and VA officials, a contract option period was exercised and began in July 2008 and will conclude in December 2008.

[19]GAO, *Computer-Based Patient Records: DOD and VA Efforts to Exchange Health Data Could Benefit from Improved Planning and Project Management*, GAO-04-687 (Washington, D.C.: June 7, 2004).

Clinical Information Board, made up of senior clinical leaders from both departments. The board is responsible for establishing clinical priorities for electronic data sharing between the departments, determining essential health information to be shared, and further identifying and prioritizing data that should be viewable and data that should be computable.

The departments produced the DOD/VA Information Interoperability Plan (Version 1.0) this month. While the scope of the plan includes health information interoperability, it also addresses interoperability of personnel and benefits information. According to the plan, it describes the scope and milestones necessary to achieve and measure progress toward interoperability goals. To this end, the plan identifies over 20 initiatives, including, for example, enhancing health information exchange between clinical information systems. The plan also incorporates information intended to address requirements in the National Defense Authorization Act for Fiscal Year 2008 that require schedules for establishing the interagency program office; establishing requirements for electronic health record systems; and acquiring, testing, and implementing electronic health record systems.

DOD and VA Are Sharing Some, but Not All, Health Information at Different Levels of Interoperability

DOD and VA are electronically sharing health information as a result of their long- and short-term initiatives to achieve interoperability; some of this information is exchanged in computable form, while other information is viewable only. However, not all electronic health information is yet shared. Further, although VA's health information is all captured electronically, not all health data collected by DOD are electronic—many DOD medical facilities use paper-based health records.

Long-Term Initiative Provides Computable Data

Data in computable form are exchanged as a result of the departments' long-term initiative to develop the CHDR interface,

which links the modernized health data repositories for the new systems that each department is developing. Implementing the interface required the departments to agree on standards for various types of data, put the data into the agreed standard formats, and populate the repositories with the standardized data.[20] Currently, the types of computable health data being exchanged are limited to outpatient pharmacy and drug allergy data. According to the departments, the next type of data to be standardized, included in the repositories, and exchanged in computable form is laboratory data (i.e., chemistry and hematology laboratory results).[21] However, DOD and VA officials told us that this data exchange is expected to be achieved by October 31, 2009.

Currently, these computable data are not shared for all patients—rather only for those who are seen at both DOD and VA medical facilities, identified as shared patients, and then "activated."[22] Once a patient is activated, all DOD and VA sites can access information on that patient and receive alerts on allergies and drug interactions for that patient. According to DOD and VA officials, outpatient pharmacy and drug allergy data were being exchanged on almost 19,000 shared patients as of July 31, 2008; however, officials stated that they are unable to track the number of shared patients currently receiving care from both departments, so the number of patients for whom data could potentially be shared is unknown.

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[20]DOD has populated CDR with information for outpatient encounters, drug allergies, and order entries and results for outpatient pharmacy and lab orders. VA has populated HDR with patient demographics, vital signs records, allergy data, and outpatient pharmacy data; in July 2007, the department added chemistry and hematology, and in September 2007, added microbiology.

[21]Standardizing the data involves different tasks for each department. That is, although VA's health records are already electronic, it must still convert them into the standardized format appropriate for its repository. DOD must convert and standardize current records from its multiple systems, but it must also address health records that are not automated.

[22]That is, they are matched on certain identifiers—first name, last name, date of birth, Social Security number—in both agencies' health information systems and established as "active" shared patients.

Short-Term Initiatives Provide Viewable Data

Data in viewable form are shared as a result of the various short-term initiatives previously mentioned. Through BHIE, clinicians can query selected health information on patients from all DOD and VA sites and view current data onscreen almost immediately. Because the BHIE interface provides access to up-to-date information, clinicians at both departments have expressed strong interest in expanding its use, and DOD and VA have taken steps in this regard. For example, the departments completed a BHIE interface with DOD's Clinical Data Repository in July 2007, and they began sharing viewable patient vital signs information through BHIE in June 2008. Extending BHIE connectivity could provide both departments with the ability to view additional data in DOD's legacy systems, until such time as the departments' modernized systems are fully developed and implemented. According to a DOD/VA annual report[23] and program officials, the departments now consider BHIE an interim step in their overall strategy to create a two-way exchange of electronic health records.

DOD has been using another short-term initiative, FHIE, to transfer information to VA since 2002, allowing VA clinicians to view service members' electronic health information when the members leave active duty. Among the data elements transferred are laboratory results, radiology results, outpatient pharmacy data, allergy information, consultation reports, and demographic data. Further, since July 2005, FHIE has been used to transfer pre- and post-deployment health assessment and reassessment data. Transfers are done in batches once a month, or weekly for veterans who have been referred to VA treatment facilities.

Another initiative that provides viewable data, LDSI, is deployed when local agencies have a business case for its use and sign an agreement to share laboratory resources. LDSI currently supports a variety of chemistry, hematology, toxicology, and serology laboratory results. If a test is not performed at a DOD or VA doctor's home facility, the doctor can order the test, the order is transmitted

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[23]December 2004 DOD and VA Joint Strategic Plan.

electronically to the appropriate lab (the other department's facility or in some cases a local commercial lab), and the results are returned electronically. Among the benefits of LDSI, according to DOD and VA, are increased speed in receiving laboratory results and decreased errors from manual entry of orders.

Attachment 1 summarizes the types of health data currently shared via the DOD and VA initiatives, as well as additional types of data that are currently planned for sharing via these initiatives.

While DOD and VA are sharing or plan to share a wide range of health information, questions nonetheless exist regarding when and to what extent electronic sharing capabilities will be fully achieved. Beyond the initiatives and types of data already discussed, the electronic sharing of health information between the departments has not been fully addressed. Although VA's health information is all captured electronically, many DOD medical facilities continue to rely on paper records. Also, clinical encounters for those enrolled in the military's TRICARE health care program[24] are not captured in DOD's electronic health system unless care is received at a military treatment facility.[25] Addressing these conditions will be important to determining the outcome of the departments' joint efforts.

DOD and VA Have Adopted Standards to Allow Sharing and Are Engaged in Efforts to Establish Standards

As previously discussed, interoperability standards are an essential element in the exchange of electronic health information. In this regard, DOD and VA have agreed upon numerous common standards that allow them to share health data, which include standards that are part of current and emerging federal

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[24]Those eligible are active-duty service members, National Guard and Reserve members, retirees, their families, survivors and certain former spouses.

[25]According to DOD officials, about 7.29 million individuals are enrolled in TRICARE. These people can seek care in both the direct care system (military medical facilities) and the purchased care system (nonmilitary medical facilities).

interoperability specifications. The foundation built by this collaborative process has allowed the two departments to begin sharing computable health data (the highest level of interoperability).

The standards agreed to by the two departments are listed in a jointly published common set of interoperability standards called the Target DOD/VA Health Standards Profile.[26] The current version of the profile, dated September 2007, includes federal standards (such as data standards established by the Food and Drug Administration and security standards established by the National Institute of Standards and Technology); industry standards (such as wireless communications standards established by the Institute of Electrical and Electronics Engineers and Web file sharing standards established by the American National Standards Institute); international standards (such as the Systematized Nomenclature of Medicine Clinical Terms, or SNOMED CT, and security standards established by the International Organization for Standardization). According to the departments, they anticipate continued updates and revisions to the profile as additional federal standards emerge.

For the two kinds of data now being exchanged in computable form through CHDR (pharmacy and drug allergy data), DOD and VA adopted the National Library of Medicine data standards for medications and drug allergies,[27] as well as the SNOMED CT codes for allergy reactions.[28] This standardization was a prerequisite for exchanging computable medical information—an accomplishment that, according to the Department of Health and Human Services' National Coordinator for Health IT, has not been widely achieved.

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[26]First developed in 2004, this profile resulted from an effort in which the two departments compared their individual standards profiles for compatibility and began converging them. The Target Standards Profile is updated annually and is used for reviewing joint DOD/VA initiatives to ensure standards compliance.

[27]These data standards are known as RxNorm and Unified Medical Language System (UMLS) for medications and drug allergies.

[28]SNOMED CT, a comprehensive health and clinical terminology, was established by the International Health Terminology Standards Development Organisation, a not-for-profit association that develops and promotes use of SNOMED CT so as to support safe and effective health information exchange.

Further, DOD and VA are continuing their historical involvement in efforts to agree upon standards for the electronic exchange of clinical health information by participating in ongoing initiatives led by the Office of the National Coordinator that are aimed at promoting the adoption of federal standards and broader use of electronic health records. Health officials from both departments participate as members of the American Health Information Community and the Healthcare Information Technology Standards Panel. For example, high-level representatives of the 18-member Community include the Assistant Secretary of Defense for Health Affairs and the Director, Health Data and Informatics, Veterans Health Administration. DOD and VA are also members of the Healthcare Information Technology Standards Panel Board and are actively working on several committees and groups, including the Provider Perspective Technical Committee; Population Perspective Technical Committee; and Security, Privacy and Infrastructure Domain Technical Committee. The National Coordinator indicated that such participation is important and stated it would not be advisable for DOD and VA to move significantly ahead of the national standards initiative; if they did, the departments might have to change the way their systems share information by adjusting them to the national standards later, as the standards continue to evolve.

In addition, according to DOD officials, their department is taking steps to ensure that the electronic health records produced by its modernized health information system, AHLTA (which is a customized commercial software application), are compliant with standards by arranging for certification through the Certification Commission for Healthcare Information Technology. AHLTA version 3.3 has been installed at three DOD locations[29] for beta testing and has met specific functionality, interoperability, and security requirements. However, the officials stated that the commission cannot fully certify this version of AHLTA until it has verified that the system has been in operational use at a medical site.

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[29]These locations are the Naval Medical Center in Portsmouth, Va.; Eisenhower Army Medical Center in Fort Gordon, Ga.; and Goodfellow Air Force Base in San Angelo, Tex.

The departments' efforts to share data and to be involved in standardization activities are important mechanisms for ensuring that their electronic health records are both interoperable and aligned with emerging standards.

Further Actions Needed to Fully Establish the Interagency Program Office

To accelerate the departments' ongoing interoperability efforts, Congress included in the National Defense Authorization Act for Fiscal Year 2008 provisions establishing an interagency program office. Under the act, the Secretary of Defense and the Secretary of Veterans Affairs were required to jointly develop schedules and benchmarks for setting up the DOD/VA Interagency Program Office, and for other activities to achieve interoperable health information (that is, establishing system requirements, acquisition and testing, and implementation of interoperable electronic health records or capabilities). The schedules and benchmarks were due 30 days after passage of the act, or the end of February 2008.

The departments did not meet the February 2008 date; however, just this month they produced the DOD/VA Information Interoperability Plan, which incorporates fiscal year 2008 and 2009 schedules and milestones that DOD and VA previously referred to in a draft implementation plan. Further, in an effort to set up the program office, the departments appointed an Acting Director from DOD and an Acting Deputy Director from VA.[30] According to the Acting Director, the departments also have detailed staff and provided temporary space and equipment to a transition team. The official stated that, through the efforts of the transition team, the departments are currently developing a charter for the office, defining and approving an organizational structure, and preparing to begin recruiting permanent staff for the office, which is expected to number about 30. According to the plan, the departments expect to

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[30]Before these appointments, both the officials had been involved in the planning and implementation of the departments' current sharing capabilities.

appoint a permanent Director and Deputy Director and begin recruiting staff by October 2008. The Acting Director added that program staff are expected to be in place, and the office is expected to be fully operational by December 2008. To fund the office, the departments have reported requesting $4.94 million for fiscal year 2008 and $6.94 million for fiscal year 2009.

Within the plan, milestones and schedules have been included for achieving interoperable health information in two stages. The first stage—Interoperability I— is to be completed this month and is to make available those health data most commonly required by health care providers, as validated by the Joint Clinical Information Board,[31] which sets the clinical priorities for what electronic health information should be shared. The first milestone for this stage, sharing vital signs information, was already achieved this past June as part of the BHIE initiative. According to department officials, the remaining milestones related to sharing questionnaires and forms, family history, social history, and other history are all due during this month.

The second stage—Interoperability II— is to be completed by September 2009, and is to address additional health information enhancements. Department officials stated that the information to be covered by these enhancements is being defined, and that validation of the requirements for the enhancements by the Joint Clinical Information Board was completed in July 2008.

Nevertheless, milestones for this stage have not been fully established. Specifically, of 52 activities identified for Interoperability II, 11 do not yet have defined milestones. For example, milestones have not been identified for completing requirements validation, acquisition, and testing for the scanning of service members' paper medical records into DOD's electronic health record system in order to share these records electronically with VA; a capability expected to be implemented by September 30, 2009. Department officials stated that decisions on these milestones

[31]These data were defined in response to the recommendation by the President's Commission on Care for America's Returning Wounded Warriors.

will depend on clinical priorities, technical considerations, and policy decisions. Further, according to the plan, it is intended to serve as a "living document" that will be updated and refined as more detailed information becomes known on planned fiscal year 2008 and fiscal year 2009 initiatives, and as health care information needs change. However, although the plan (as a planning tool) is a living document, it is nonetheless important to complete the planning and make the decisions needed to finalize the plan, particularly in view of the fast approaching September 2009 deadline.

In addition, according to department officials, the interagency program office will play a crucial role in coordinating the departments' efforts to accelerate their interoperability efforts. An important aspect of this coordination will be managing implementation of the DOD/VA Information Interoperability Plan, which the departments recently finalized. According to these officials, having a centralized office to take on this role will be a primary benefit. However, the effort to set up the program office is still in its early stages. As has been noted, the positions of Director and Deputy Director are not yet permanently filled, permanent staff have not yet been hired, and facilities have not yet been designated for housing the office. In addition, the departments have not completed an interagency program office charter because the departments' leadership broadened its scope to include sharing of personnel and benefits data instead of only health information. Until the program office is fully established, it will not be able to play this crucial role effectively. Thus, it remains vital that the Secretaries of Defense and Veterans Affairs fully establish the Interagency Program Office by expediting efforts to put in place permanent leadership, staff, and facilities.

To better ensure that the effort by DOD and VA to achieve fully interoperable electronic health record systems or capabilities is accelerated, our July report included recommendations that the departments give priority to fully establishing the interagency program office and finalizing the implementation plan. Prompt action by the departments to address these recommendations is critical to developing and implementing electronic health record systems or capabilities that allow for full interoperability of personal

health care information by September 30, 2009, as specified in the National Defense Authorization Act for Fiscal Year 2008. In their comments on our report, both departments concurred with these recommendations.

In summary, through numerous efforts, DOD and VA are sharing electronic health information at different levels of interoperability. Moreover, as a result of their efforts, the departments are sharing more data than ever before. However, significant work remains to plan and implement new capabilities that could further increase the sharing of electronic health information between the departments and to determine the desired level of data interoperability. Recognizing the importance of timely implementation of such capabilities, Congress established a requirement for an interagency program office as a single point of accountability, and a deadline of about one year from now to achieve full interoperability of personal health care information between the departments. In view of this short timeframe and as we have recommended, a fully functioning program office and a finalized plan with set milestones are critical steps toward achieving interoperable electronic health records and capabilities. Although completion of the DOD/VA Information Interoperability Plan is an important and positive accomplishment, without permanent program office leadership, staff, and facilities or fully established milestones, the departments may nonetheless remain challenged in achieving interoperable electronic health information to the extent and in the manner that most effectively serves military service members and veterans.

Mr. Chairman, this concludes my statement. I would be pleased to respond to any questions that you or other members of the committee may have.

Contacts and Acknowledgements

If you have any questions on matters discussed in this testimony, please contact Valerie C. Melvin, Director, Human Capital and Management Information Systems Issues, at (202) 512-6304 or

melvinv@gao.gov. Other individuals who made key contributions to this testimony are Mark Bird, Assistant Director; Barbara Collier; Neil Doherty; Rebecca LaPaze; Lee McCracken; Barbara Oliver; Kelly Shaw; Eric Trout; and Robert Williams, Jr.

Attachment 1: Current and Planned Health Data Sharing

Table 1 summarizes the types of health data currently shared through the long- and short-term initiatives we have described, as well as types of data that are currently planned for addition.

Table 1: Data Elements Made Available and Planned by DOD/VA Initiatives

| Initiative | Data elements | | Interoperability level | Comments |
	Available	Planned		
CHDR	Outpatient pharmacy Drug allergy	Laboratory data	Computable data	Data are exchanged between one department's data repository and the other's. As of July 31, 2008, computable pharmacy and medication allergy data were being exchanged on almost 19,000 shared patients. The departments are prioritizing their current needs to determine what, if any, additional data elements need to be exchanged at the computable data level.
BHIE, Bidirectional Health Information Exchange	Outpatient pharmacy data Drug and food allergy information Surgical pathology reports Microbiology results Cytology reports Chemistry and hematology reports Laboratory orders Radiology text reports Inpatient discharge summaries, emergency room notes, inpatient consultation, operative reports, and history and physical reports from CIS at 17 DOD sites (about 40% of inpatient beds) and all VA sites Provider notes Procedures Problem lists Vital signs	Scanned images and documents Family history Social history Other history questionnaires Radiology images Psychological health treatment and care records Rollout of CIS at additional DOD sites; expansion to include additional CIS documentation: initial evaluation notes, procedure notes, evaluation and management notes, preoperative and postoperative evaluation notes	Structured, viewable data Unstructured, viewable data from scanned documents	Data are not transferred but can be viewed. Limitations: Inpatient data are available only from a portion of DOD inpatient hospitals, not all military hospitals.

	Data elements			
Initiative	**Available**	**Planned**	**Interoperability level**	**Comments**
FHIE, Federal Health Information Exchange	Patient demographics Laboratory results Radiology reports Outpatient pharmacy information Admission discharge transfer data Discharge summaries from CHCS Consult reports Allergies Data from the DOD Standard Ambulatory Data Record Pre- and postdeployment health assessments Postdeployment health reassessments	None	Structured, viewable data	Noncomputable text data are transferred to VA and stored in VA's FHIE database, making it accessible to all VA clinicians. One-way batch transfer of text data from DOD to VA occurs weekly if discharged patient has been referred to VA for treatment; otherwise monthly. Limitations: Discharge summaries from CHCS only[a] are transferred, not from other DOD systems.
LDSI, Laboratory Data Sharing Interface	Laboratory orders Laboratory results (chemistry, hematology, toxicology, and serology at all LDSI sites; anatomic pathology and microbiology at two localities)	Additional sites as business need arises	Structured, viewable data	Noncomputable text data are transferred and captured in the individual's health record.

Source: GAO analysis of DOD and VA data.

[a] According to department officials, the discharge summary module of CHCS is used at a limited number of sites.

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